



ANALYSIS: GETTING INTO GASIFICATION

Interest in waste gasification technologies is on the rise in the U.S. but are non-recycled plastics an ideal feedstock?



Thanks to their ability to produce a range of energy and fuel products, there is growing interest in technologies collectively termed 'gasification' in the U.S., according to a recent report conducted on behalf of the American Chemistry Council (ACC).

The research found that globally there are 147 companies offering gasification technologies in different stages of development, most of which market in the U.S. through licensees. Currently 21 companies were reported to have pilot and demonstration facilities in the U.S. A further 17 commercial-scale facilities were said to be under development and/or construction.

The report, 'Gasification of Non-Recycled Plastics from Municipal Solid Waste in the United States' was conducted by consultants, Gershman, Brickner & Bratton (GBB) and found that non-recycled waste plastics make an attractive feedstock for such facilities.

Non-recycled plastics are defined in the report as plastics not diverted for recycling that remain in MSW or in MRF residue. Such plastics are currently directed to waste to energy facilities or landfills. The EPA has reported that approximately 12% of total MSW is comprised of plastic materials - over 31 million tons (28 million tonnes) in 2010.

The consultants noted that the non-recycled portion of the plastic waste will be relatively predictable and consistent. It is likely to remain this way unless either the market for recovered plastics grades expands to include currently non-recycled plastic grades, or the state of plastic waste generation changes.

"Despite rapid increases in recycling in recent years, a significant amount of energy-rich waste still goes to landfill in this country," commented Harvey Gershman, president of GBB.

The research concluded that until infrastructure and markets for the recovery and recycling of more plastic materials are in place, it is preferable to use these materials to produce energy, fuels, and chemicals, rather than to dispose of them in landfills.

Currently, mass burn and the combustion of refuse derived fuel were said to be the most commonly applied thermal technologies for wastes. According to the report, gasification and pyrolysis, while considered established technologies for certain feedstocks, are considered emerging technologies with respect to MSW.

Opportunities

According to the report, gasification can potentially process both mixed waste and the plastic only fraction of the waste. This makes it attractive to an increasing number of municipalities that wish to reduce their reliance on landfill, and which manage mixed wastes, commercial/industrial wastes and waste plastics.

Another advantage offered by gasification is that markets for the final products are established. Electricity, ethanol and chemicals are valuable, marketable products and are potential sources of revenue for the gasification facilities.

For example, the report noted that in March of 2013, prices for ethanol ranged between \$3.15 and \$3.60 per gallon, and with a conservative conversion rate of 70 gallons of ethanol produced per ton of MSW, this amounts to approximately \$230 per ton of MSW.

According to the report, one ton of MSW converted to syngas, then combusted to produce electricity, offers a potential revenue of \$45-\$55. Thus, conversion to ethanol or other fuels was found to represent a significant economic opportunity.

However, the report also cautioned that as an emerging technology in MSW treatment, gasification faces a number of barriers to commercialisation.

Send your news to Waste Management World
e-mail: benm@pennwell.com